

WHAT IS CLAIMED IS:

1. A nonwoven formed from a plurality of fibers needled into an integral web having an x-axis, an y-axis, and an z-axis, wherein said fibers are
5 needled at an angle from the z axis in the x-z plane, and wherein the fibers forming said nonwoven include low melt semi-crystalline polyester sheath fibers and higher melt polyester fibers.
2. The nonwoven according to Claim 1, wherein the angle that the fibers are needled is from about 30° to about 60° from the z-axis.
- 10 3. The nonwoven according to Claim 1, wherein the angle that the fibers are needled is about 45° from the z-axis.
4. The nonwoven according to Claim 1, wherein the fibers forming said nonwoven comprise synthetic polymeric fibers.
5. The nonwoven according to Claim 6, wherein the sheath of the low
15 melt semi-crystalline polyester sheath fibers has a melting point of from a bout 130°C to about 165°C.
6. The nonwoven according to Claim 1, wherein the fibers forming the nonwoven comprise fibers having a denier per filament of from about 1 to about 20.
- 20 7. The nonwoven according to Claim 1, wherein the fibers forming the nonwoven comprise fibers having a denier per filament of from about 3 to about 18.
8. The nonwoven according to Claim 1, wherein the fibers forming the nonwoven comprise fibers having a staple length of from about 1 inches to
25 about 4 inches.

9. The nonwoven according to Claim 1, wherein the fibers forming the nonwoven comprise fibers having a staple length of from about 1.5 inches to about 3.0 inches.
10. The nonwoven according to Claim 1, wherein the fibers forming the
5 nonwoven are also needled parallel to the z axis.
11. A method of forming a nonwoven comprising the steps of:
blending a plurality of core/sheath fibers with a plurality of matrix fibers;
layering a web of the blended fibers into a planar shape having an x-axis, an y-axis, and an z-axis;
10 needling the web of fibers at an angle to the z-axis in the x-z plane such that an integral mat is formed.
12. The method according to Claim 11, wherein the step of needling the web of fibers at an angle includes the angle being from about 30° to about 60° from the z-axis in the x-z plane.
- 15 13. The method according to Claim 11, wherein the step of needling the web of fibers at an angle includes the angle being about 45° from the z-axis in the x-z plane.
14. The method according to Claim 11, wherein the step of needling the web of fibers includes also needling the fibers substantially parallel to the z
20 axis of the web.
15. The method according to Claim 11, wherein the sheath of the core/sheath fibers comprise a low melt semi-crystalline polyester.
16. The method according to Claim 15, further including the step of molding the needled web of fibers into a molded component part with the
25 application of heat and pressure.